

THE DEATH-FEINTS OF IDIOBATES CASTANEUS  
KOCH AND BOLETOTHERUS BIFURCUS FAB.  
(COLEOPTERA, TENEBRIONIDÆ)

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During 1945 there was an opportunity to determine the duration of successive death-feints of two species of tenebrionid beetles, namely *Idiobates castaneus* Koch and *Boletotherus bifurcus* Fab., and the following notes are the results of the timing tests that were made.

*Idiobates castaneus* Koch

In this species the death-feint was initiated by dropping the beetles through a distance of several inches or by pressing or tapping the ventral surface of the thorax. The number of successive feints that could be induced in this manner varied from 5 to 19 for the 10 beetles that were tested. After an individual would no longer feign death it was discarded for a new individual that had not been tested previously. As soon as an individual recovered from a death-feint, it was immediately stimulated, so that it went into another one, and this was kept up until it no longer responded. The total length of time it was possible to produce death-feints in this way varied from 50 seconds to 1,180 seconds, or from less than 1 minute to almost 20 minutes.

In the following table the records for each beetle are listed, together with a figure showing the average duration of the successive death-feints. These averages varied from 17 to 127 seconds, but they do not show the large variation that occurred in the duration of single death-feints, which ranged from 1 to 900 seconds. It was impossible to initiate each death-feint with the same amount of stimulation, and the variations in duration may be due, in some part, to variations in the degree of stimulation. Their behavior at 76° F., was substantially the same as their behavior at 70° F., and it made no difference whether they were placed on their dorsal or ventral surfaces during the death-feints.



DURATION OF SUCCESSIVE DEATH-FEINTS OF *Boletotherus bifurcus* FAB. AT TEMPERATURES OF 77° F. AND 92° F.

Beetle A Resting on dorsum Mech. stim. 77° F. Seconds	Beetle B Resting on dorsum Air stim. 77° F. Seconds	Beetle C Resting on ventral surface Mech. stim. 77° F. Seconds	Beetle D Resting on ventral surface Air stim. 77° F. Seconds	Beetle E Resting on ventral surface Mech. stim. 92° F. Seconds	Beetle F Resting on dorsal surface Mech. stim. 92° F. Seconds
120	5	105	20	900	280
145	30	220	253	165	130
80	20	75	23	7	80
405	28	323	92	24	60
83	3	265	6	6	6
195	15	83	15	115	16
115	3	200	17	85	11
180	9	327	11	100	69
420	22	95	9	3	235
260	15	76	16	5	27
30	8	20	8	7	8
92	8	200	6	3	3
8	85	50	3	3	4
360	43	85	12	5	11
22	12	190	3	4	2
30	24	180	19	3	2
55	45	100	8	3	1
180	14	25	9	2	1
152	27	75	5	2	1
100	8	20	9	4	2
12	5	16	8	2	1
24	9	30	12	7	8

DEATH-FEINTS OF *Boletotherius bifurcatus* FAB. (CONTINUED)

Beetle A Resting on dorsum Mech. stim. 77° F. Seconds	Beetle B Resting on dorsum Air stim. 77° F. Seconds	Beetle C Resting on ventral surface Mech. stim. 77° F. Seconds	Beetle D Resting on ventral surface Air stim. 77° F. Seconds	Beetle E Resting on ventral surface Mech. stim. 92° F. Seconds	Beetle F Resting on dorsal surface Mech. stim. 92° F. Seconds
6	50	4	10	1	2
<u>3,074</u>	19	6	6	2	1
AV. 134	11	8	8	4	3
	23	<u>2,778</u>	6	2	1
	5	AV. 111	4	3	73
	8		24	2	68
	6		5	1	32
	7		5	1	33
	5		6	1	5
	3		2	<u>1,472</u>	3
	7		6	AV. 47	2
	6		5		1
	12		5		<u>1,182</u>
	11		7		AV. 35
	8		8		
	32		<u>671</u>		
	20		AV. 18		
	5				
	<u>676</u>				
	AV. 17				

*Boletotherus bifurcus* Fab.

This species feigns death at the slightest touch, and the death-feints for the six individuals tested were initiated by first picking them up and then inducing the successive death-feints by gently tapping, with a pencil, their ventral and dorsal surfaces. The durations of the death-feints were apparently not affected by the positions of the beetles. Two methods of stimulation were used—a mechanical stimulation or tapping and air stimulation. In the latter case, two or three puffs of air from a small hand-bellows, such as is used to distribute “bed-bug” powder, were directed against the insects.

At a temperature of 77° F., the average duration of a death-feint induced by mechanical means varied from 111 seconds to 134 seconds as compared with averages of 17 and 18 seconds, for air stimulation. As the degree of air stimulation was more constant and lighter than the mechanical pressure, this indicates that some correlation exists between the force of the stimulus and the duration of the death-feint. Although large variations occurred in the durations of the death-feints, the figures in the following table show that air-stimulated death-feints were, on the whole, relatively short. An increase of 15 degrees in the Fahrenheit temperature also decreased the durations of the death-feints and hastened recovery.

The number of successive death-feints that could be induced among the 6 beetles varied from 23 to 40 and the total durations of the combined death-feints for each beetle varied from 671 seconds to 3,074 seconds or from about 10 minutes to 51 minutes.